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## EUROPEAN PATENT APPLICATION

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⑯ **Shaving composition.**

⑯ A shaving composition incorporating a betaine. The preferred composition is a transparent gel based on hydroxyethyl cellulose and also incorporating a quaternary ammonium compound and a soluble oil obtained from plummage grease.

**EP 0 002 127 A1**

FIELD OF THE INVENTION

The present invention relates to a shaving composition, that is to say a composition which is applied to the face in order to soften the hair preparatory to 5 application of a razor.

In the past there have been available for this purpose soaps in the form of sticks or bowls adapted to be applied to the face as a lather with a brush. There have also 10 been available creams adapted to be applied with a wet brush for the same purpose, called "lather creams". There have also been available so called "brushless shaving creams" which are applied simply by hand. All of these 15 compositions had little more effect or stated purpose than the mere wetting of the hair. The compositions applied with a brush are generally time consuming although more effective than the brushless creams, which suffer from the 20 additional disadvantage that they are immiscible with water, resulting in clogging of the razor and difficulty in subsequent cleaning of the basin.

SUMMARY OF THE INVENTION

I have now found that surprising benefits can be obtained by the incorporation in a shaving composition of a betaine. The betaine should be of a cosmetically acceptable 5 type, many examples of which are known and have been used for example in shampoos for ten years or more. Other uses to which betaines have been applied are soaps and detergents in general and fabric softeners.

10 They are well known for their anti-static properties and many of them have, to a greater or lesser extent, useful anti-irritant properties, which accounts for their use particularly in shampoos.

15 The particular properties which render them beneficial in shaving compositions are not clearly known. The use of an agent having anti-static properties, while of obvious benefit in relation to the washing of hair of 20 substantial length, would not appear prima facie to have a clear application to the treatment of stubble. It is believed however, that the anti-static properties may contribute to some extent but that the particular action 25 of the betaines on the roots of the hair provides the surprising ability for close

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shaving which is achieved through use of the invention. The invention is not however limited to the operation of any particular mechanism.

5        The amount of betaine to be employed in the composition may in general vary from 0.1 to 10 per cent by weight, depending on the type of end product. For example 0.5 per cent is preferred for gel formulations to be described  
10        and 3% for cream formulations.

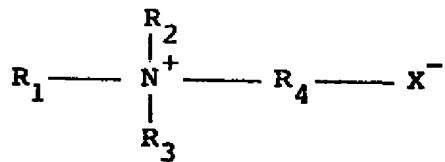
Any of the betaines advocated for use in personal toilet soaps or shampoos are in general suitable. Many such compounds are disclosed, e.g. in the following British patent specifications:  
15        995,353; 1,084,739; 1,087,414; 1,087,415; 1,274,005; 1,291,424; 1,355,233.

The word "betaine" is used herein to mean any zwitterionic quaternary ammonium compound having positive and negative charges which are internally neutralised. Thus the expression  
20        includes compounds sometimes called sulphobetaines or sultaines. "Quaternary ammonium compound" as used herein excludes internally neutralised compounds.

25        DETAILED DESCRIPTION OF EMBODIMENTS

The preferred betaines may be represented

by the following formula:



where  $R_1$  is alkyl or alkenyl of 8-20 carbon atoms which may be saturated or unsaturated, may be interrupted by heteroatoms or groups such as  $-O-$ ,  $-COO$  or  $CONH$  and may have one or more hydroxy substituents,  $R_2$  and  $R_3$  are alkyl residues of 1 to 4 carbon atoms,  $R_4$  is an alkylene residue of 1 to 3 carbon atoms and  $X$  is  $-COO$ ,  $-SO_3^-$ , or  $-OSO_3^-$ .

$R_1$  may also include  $R_5$   $CH_2-$  groups as



described in British patent specifications Nos. 1,274,005 and 1,291,424, although this is not preferred.  $R_5$  is alkyl of 8 to 24, preferably 10 to 18 carbon atoms.

Preferably  $R_1$  has 12 to 18 carbon atoms and  $R_2$  and  $R_3$  are methyl.

The preferred betaines are those described in British patent specification No. 1,084,739, 20 i.e. those in the formula above in which  $R_1$  represents a hydrophobic group which is an alkyl or alkenyl group having from 8 - 18 carbon atoms, for example a dodecyl, tridecyl,

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myristyl, cetyl, stearyl, 2-mythylpentadecyl group or an alkyl phenyl group possessing an alkyl substituent having from 6 to 16 carbon atoms, for example a p-octylphenyl, p-nonylphenyl or p-dodecylphenyl group. Preferably  $R_1$  represents a lauryl and/or myristyl group, which may be derived from an alcohol which has been obtained by reduction of the mixture of fatty acids or their derivatives obtained from 10 coconut oil and may be a whole cut, middle-cut or narrow-cut distillate fraction; "middle-cut coconut alcohol" comprises at least 50 per cent by weight of dodecyl alcohol and "narrow-cut" coconut oil at least 70 per cent by 15 weight.

$R_2$  and  $R_3$  are preferably methyl but may be ethyl or 2-hydroxyethyl or 2-hydroxypropyl.

Preferably  $R_4$  is methylene but alternatives are ethylene, 2-hydroxyethylene and 2-hydroxypropylene.

The group  $X^-$  is preferably a carboxy group.

The betaine employed in the preferred embodiment to be described is that sold under 25 the trade mark EPIGEN BB which can be represented by the formula above in which

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$R_2$  and  $R_3$  are methyl,  $R_4$  is methylene,  
 $X^-$  is carboxyl and  $R_1$  is predominantly  
lauryl/myristyl ( $C_{12}/C_{14}$ ). This is normally  
sold as a 30 per cent by weight solution

5 in deionised water, containing 0.5 per  
cent of free amine and having a pH of 8.  
It has extremely mild detergent action and  
is non-irritant.

The following are alternative betaines

10 within the general formula above:

1 lauryl dimethyl carboxymethyl betaine;  
lauryl dimethyl alpha-carboxyethyl betaine;  
cetyl dimethyl carboxymethyl betaine; lauryl  
bis-(2-hydroxyethyl) carboxymethyl betaine;  
15 lauryl bis-(2-hydroxyethyl) betasulphatoethyl  
betaine, lauryl dimethyl beta-sulphatoethyl  
betaine; stearyl bis-(2-hydroxypropyl) carboxymethyl  
betaine; cetyl bis-(2-hydroxyethyl) beta-sulph-  
hatopropyl betaine; oleyl dimethyl gamma-  
20 carboxypropyl betaine; and lauryl bis-(2-hydrox-  
ypropyl) alpha-carboxyethyl betaine, 1-myristyl  
dimethylammonio) propane - 3 - sulphonate and  
1- (myristyl - dimethylammonio) - 2 -  
hydroxypropane - 3 - sulphonate and the coconut  
25 oil-derived alkyl dimethyl betaine and the  
alkyl amidopropyl dimethyl betaine detergents

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in which the alkyl group contains  
3% C<sub>8</sub>, 7% C<sub>10</sub>, 48% C<sub>12</sub>, 18% C<sub>14</sub>, 9% C<sub>16</sub>  
and 10% C<sub>18</sub>.

The composition of the invention  
5 preferably also includes a proportion  
of a quaternary ammonium compound which  
should be of the type which is cosmetically  
acceptable e.g. in soaps, creams and the  
like and which have anti-microbial properties.

10 The quaternary ammonium compound is  
utilised to stabilise the composition against  
deterioration. However it is also useful  
for its detergent properties and softening  
effect upon the hair, and for its antistatic  
15 properties. Many suitable quaternary  
ammonium compounds are known and are used in  
shampoos and soaps, e.g. in the earlier British  
patents above disclosed, especially 1,355,233  
and also 1,029,043. The preferred compound  
20 is cetyl trimethyl-ammonium bromide which is  
sold under the trade mark Cetrimide. The  
quaternary ammonium compound may be employed  
in amount by weight of 0.05 to 5 per cent  
of the composition, preferably about 2 per cent.

25 The composition may be in the form of a  
shaving soap, a lather cream, or a brushless  
cream, in its broad aspect. However, I have

developed, in accordance with an important preferred aspect of the invention, a novel composition in the form of a substantially transparent gel. This gel is especially 5 effective for the following reasons.

It can be applied in small quantities, e.g. about 1ml to the moistened face directly with the hand. It provides a lubricant to the razor, giving a smooth action, and it 10 allows the stubble to be viewed during the shaving operation, which is impossible with lathers and creams. It is not normally necessary to shave more than once but the gel can in any case be redistributed by a 15 second gentle rub with the hand if a second shave is necessary. The whole operation is extremely rapid and the face left in a smooth and soft condition.

The preferred gel can be based upon 20 colloidal dispersing agents or gelling agents such as hydroxyethyl cellulose. The preferred gelling agents are those sold under the trade mark Tylose H. As sold, these are odourless and neutral. They have a cellulose ether content 25 of about 93%, about 5% moisture (as supplied) about 2% residual sodium acetate, about 2%

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molar substitution, about 35% average  
-  $\text{OC}_2\text{H}_4$  content and a specific gravity of  
1.4. Thermal decomposition begins at  
about  $200^{\circ}\text{C}$ . The preferred ingredient  
5 Tylose H 4000 has an average molecular  
weight of 190,000 and a viscosity  
(Hoepppler viscosity of 2 per cent solution  
at  $20^{\circ}\text{C}$ ) of 3000 to 5000 cP.

The Tylose is preferably employed in  
10 dilute aqueous solution, e.g. 2.5% by  
weight. This solution may constitute  
about 95% by weight of the composition and  
may vary e.g. between 80 to 98 per cent.  
The solution concentration may vary from  
15 e.g. 1 to 4% by weight.

Preferably there is also included in  
the gel a small quantity e.g. about 2.5%  
by weight or generally from 1 to 3 per cent  
of an oil. The preferred oil is that sold  
20 under the trade make Pur-Cellin Soluble.  
This is a soluble form of oil derived from  
the plumage grease of water fowl. Chemically  
the base oil is an alkyl branched fatty acid  
ester with a low solidification point  
25 (around  $0^{\circ}\text{C}$ ). This material is absorbed  
by the skin, leaving it soft and moist.

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The invention is hereafter further described with reference to certain non-limitation examples.

### Example 1

5 The following example gives a preferred formulation of shaving gel in accordance with the invention.

Per Cent by Weight

	Cetrimide	0.5
10	Empigen BB (30% by weight aqueous solution)	2
	Pur-Cellin Soluble	2.5
	Tylose H 4000 (2.5% solution)	95

### Example 2

In Example 1, the quaternary ammonium compound Cetrimide is replaced by the same proportion of Dehyquart SP (Trade Mark). This is an oxyethyl alkyl ammonium phosphate commonly used in hair conditioners.

20      Example 3

The following is an example of a brushless shaving cream.

		<u>Per Cent by Weight</u>
	Cetyl stearyl alcohol	15%
	Empigen BB (30% solution)	10%
	Glycerol or sorbitol	15%
5	Pur-Cellin Oil	5%
	Perfumes (as desired)	
	Water	balance

In general the cetyl stearyl alcohol  
10 can be replaced by any suitable emulsifying  
wax including commercial brands of self-  
emulsifying wax within the broad limits of  
1 to 15%. The betaine can be any suitable  
betaine as already described within the  
15 broad limits described, but a larger minimum  
amount will be necessary where non-self-  
emulsifying waxes are used. The glycerol or  
sorbitol can be very broadly between 5 to 20%.  
The Pur-Cellin oil can be replaced by  
20 Pur-Cellin Soluble and either of these can  
vary from 1 to 10%. Furthermore, a quaternary  
ammonium compound may be added to replace  
part of the betaine, but preferably not more  
than half the betaine by weight, should be so  
25 replaced.

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Example 4

In order to prepare a lather shaving cream, the recipe of Example 4 can be used with the replacement of the 5 glycerol or sorbitol by coconut oil-diethanolamide.

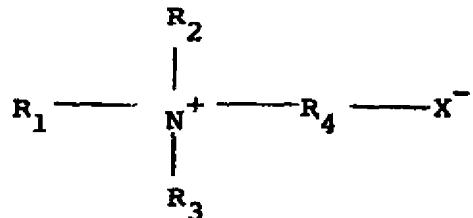
In order to prepare a solid shaving soap, a conventional toilet soap formulation may be used containing up to 10% by weight 10 of betaine. Part of the betaine may be replaced by a quaternary ammonium compound but the total of the mixture should preferably not exceed 10% by weight, and there is preferably not less than 1% and not more 15 than 5% of such a quaternary ammonium compound.

## CLAIMS:

1. A shaving composition incorporating a cosmetically acceptable betaine.

2. A shaving composition as claimed in claim 1 wherein the amount of betaine is 5 from 0.1 to 10% by weight of total weight.

3. A shaving composition as claimed in claim 1 or claim 2 wherein the betaine is represented by the formula:



where  $R_1$  is selected from

10 (a) alkyl and alkenyl of 8-20 carbon atoms which may be saturated or unsaturated, may be interrupted by hetero-atoms or groups such as  $-O-$ ,  $-COO$  or  $CONH$  and may have one or more hydroxy substituents, and

15

(b)



where  $R_5$  is alkyl of 8 to 24 carbon atoms  
 and where  $R_2$  and  $R_3$  are alkyl residues of  
 1 to 4 carbon atoms,  $R_4$  is an alkylene  
 residue of 1 to 3 carbon atoms and  $X$  is  
 5  $-CO\bar{O}$ ,  $-SO\bar{O}_3^-$ , or  $-OSO\bar{O}_3^-$ .

4. A shaving composition as claimed in  
 claim 3 wherein  $R_1$  is selected from dodecyl,  
 tridecyl, myristyl, cetyl, stearyl, a  
 10 2-mythylpentadecyl group and an alkyl phenyl  
 group possessing an alkyl substituent having  
 from 6 to 16 carbon atoms,

wherein  $R_2$  and  $R_3$  are selected from  
 methyl, ethyl, 2-hydroxyethyl,  
 and 2-hydroxypropyl,  
 15 wherein  $R_4$  is selected from methylene,  
 ethylene, 2-hydroxyethylene and  
 2-hydroxypropylene, and  
 wherein the group  $X^-$  is a carboxy group.

5. A shaving composition as claimed in  
 20 claim 3 and in which  $R_2$  and  $R_3$  are methyl,  $R_4$   
 is methylene,  $X^-$  is carboxyl and  $R_1$  is  
 predominantly lauryl and myristyl.

6. A shaving composition as claimed in any preceding claim incorporating a cosmetically acceptable quaternary ammonium compound in an amount by weight of 0.05 to 5% of the composition.

5 7. A shaving composition as claimed in claim 6 wherein the quaternary ammonium compound comprises cetyl trimethyl ammonium bromide.

10 8. A shaving composition as claimed in any preceding claim in the form of a substantially transparent gel.

15 9. A shaving composition as claimed in claim 8 incorporating as a gelling agent, hydroxyethyl cellulose which has (prior to incorporation) an average molecular weight of 190,000 and a viscosity (Hoeppler viscosity of 2% solution at 20°C) of 3000 to 5000 cP.

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10. A shaving composition as claimed in  
claim 8 or claim 9 wherein the gel contains  
hydroxyethyl cellulose in the form of an  
aqueous solution of from 1 to 4% by weight  
5 constituting from 80 to 98% of the gel.

11. A shaving composition as claimed in  
claim 15 wherein the gel includes from  
1 to 3% of a soluble form of a base oil  
derived from the plummage grease of water  
10 fowl and consisting of an alkyl branched  
fatty acid ester.



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EUROPEAN SEARCH REPORT

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Application number

EP 78 30 0627

DOCUMENTS CONSIDERED TO BE RELEVANT			CLASSIFICATION OF THE APPLICATION (Int. Cl.)
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	TECHNICAL FIELDS SEARCHED (Int.Cl.)
X	<p><u>FR - A - 2 229 392 (WILKINSON SWORD)</u></p> <p>* Page 4, line 18 - page 5, line 19; page 6, lines 19-21; page 9, lines 14-17; example 19 *</p> <p>—</p>	1-5	A 61 K 7/15
X	<p><u>GB - A - 1 479 706 (WILKINSON SWORD)</u></p> <p>* Page 1, lines 9-12; page 3, lines 26-65; page 4, lines 70-78; page 4, lines 110-116; example 7; claims *</p> <p>—</p>	1-5	
	<p><u>FR - A - 2 208 976 (MODOKEMI)</u></p> <p>* Page 1, lines 1-34; page 5, lines 25,26 *</p> <p>—</p>	1-5	A 61 K 7/15 C 11 D 1/90 1/92
	<p><u>FR - A - 2 010 816 (COLGATE-PALMOLIVE)</u></p> <p>* Page 5, line 22 - page 6, line 14; page 8, line 23 - page 9, line 30 *</p> <p>—</p>	1-7	
	<p><u>US - A - 2 833 693 (NAIMARK)</u></p> <p>* Column 1, line 10 - column 4, line 50 *</p> <p>—</p>	8-10	<p>CATEGORY OF CITED DOCUMENTS</p> <p>X: particularly relevant A: technological background O: non-written disclosure P: intermediate document T: theory or principle underlying the invention E: conflicting application D: document cited in the application L: citation for other reasons</p> <p>&amp;: member of the same patent family, corresponding document</p>
<p><input checked="" type="checkbox"/> The present search report has been drawn up for all claims</p>			
Place of search	Date of completion of the search	Examiner	
The Hague	09-02-1979	JONAS	